Comments/Resolution

Volume III, Guidance

April 1997

U. S. DEPARTMENT OF ENERGY

Assistant Secretary for Human Resources and Administration
Deputy Assistant Secretary for Information Management

Introduction

The pre-publication draft of Volume III, Guidance, dated December 1996, was sent to over 200 people and activities throughout the Department for review and comment on February 20, 1997. The initial responses were due back within three weeks. This period was extended several times to allow field organizations sufficient time to review and respond.

Sixty-one comments from thirteen respondents were received. The following organizations provided comments.

RW	FE	HR
EH	CR	CIO
NN	FM	Pantex Plant
DP	EH	Mound Facility
Chicago Operations Office		

The comments and the action taken to resolve each of these comments are provided in chapter 1. The most frequent comments concerned the following.

- Expressed desire for increased detail about "how to" build or develop compliant architectures. Some of this confusion was due to a lack of clarity or emphasis on the stated purposes of this version. Appropriate changes were incorporated.

- Misunderstanding that this document actually provided descriptive guidance for sound architecture programs and activities rather that prescriptive or mandatory compliance guidance. The use of terms such as "strongly recommended" or "preferred" throughout the document were used intentionally to allow for accommodation of local needs. The only exception to this phrasing was in the general area of security where the use of imperatives was intended to mirror the references rather than to provide looser and potentially more contradictory guidance language.

- Misunderstanding that architecture standards and other closely related processes are identified in the applicable references and were intentionally not duplicated in coverage in this draft. In some cases, the needs identified by the respondents were being treated in other new initiatives while this document was being prepared. Capital investment for technology and management council charters are two examples.

All comments were researched, examined, resolved, and appropriate changes to the pre-publication draft were made.

A draft of Volume III, Guidance, dated November 1996, was sent to approximately 25 Assistant Secretary for Human Resources and Administration (HR) representatives. The comments and the action taken to resolve each of these comments are provided in chapter 2. All comments were researched, examined, resolved, and appropriate changes to the draft were made.

Contents

Chapter 1

Guidance

(Pre-publication Draft)
Comments/Resolution

Page #	Section Title & Identification	Comments/Resolution
None	General Observation	**Name:** Tannert, Galaxy Computer Services, Inc for NN **Comment:** For the NN organization, I have reviewed the "Department of Energy Information Architecture, Volume III, Guidance, Prepublication Draft, December 1996" and developed no comments. Job well done. Congratulations. **Action Taken:** Thank you.
None	General Observation	**Name:** Scott, EH-72 **Comment:** "... We have reviewed the Information Architecture, Volume III, Guidance and endorse the goal of the publication. ... We appreciate the work that has gone into the "Information Architecture" series and commend the efforts of it authors. Without such a foundation, it is not likely that our plans for improving information management will be successful." **Action Taken:** Agreed. Thank you.
None	General Observation	**Name:** Eckhart, CR **Comment:** The pre-publication draft needs to be boiled down. It has too many examples and statements that repeat. **Action Taken:** We reviewed the document for brevity and conciseness with particular effort given to reducing the many examples in the draft. We see from the comments received by others that there is a desire for more (or other) examples to provide the needed clarity. We have deleted some, added a few, and have revised others to be more instructive. Since Guidance will not be available as with "online" help files, the text must be complete

Page #	Section Title & Identification	Comments/Resolution
		enough to allow readers to understand the spirit or intent of the guidance - not merely comply with checklists.
None	General Observation	**Name:** Wiard, HR-08 **Comment:** There are no other comments from the front office on the report. Thanks for your comments about the editing suggestions. I didn't think it was a sloppy job at all. In fact, I commented several times while I was reading it how well written and organized the report was. It was agreed that you always do an excellent job. Most of the things I found to fix or think about were typical things that come up from a "cold" reader. Writers and first-line editors tend to get too intimate with a project and no longer see the obvious. **Action Taken:** We incorporated most if not all of your editorial suggestions.
None	General Observation	**Name:** Ladesic, FE-01 **Comment:** In general the DOE proposed Information Technology Architecture (ITA) seems to be a close fit to the proposed "OMB Guidance." The DOE ITA covered all the basis including "customer driven," modular components, scalability, "open systems," data security, quality information, DOEwide access, "human factors engineering," etc. I was impressed with the proposed ITA as a potential compendium of IT buzzwords. Some include "virtual office of the future," transparent infrastructure, seamless information technology, user-friendly, user-centric, common standards, protocols and middleware and modular architecture to name a few. I believe DOE will meet the OMB criteria for an "acceptable" and maybe even good ITA document. However, we must assure that we "walk the walk" as well as "talk the talk." **Action Taken:**

As might be expected, guidance serves a variety of uses. What some seek as capabilities and functionality, others perceive as buzz words. For example, the term "seamless' was identified during early IMPACT meetings to describe a desirable user-friendly stitching together of components and capabilities. To explain the architecture features this term would exhibit, we did some research and identified the material covered by "transparency engineering." The value added is that we have identified ways in which "seamless" can be determined and designed.

The Guidance authors have gone to great lengths to identify how one would satisfy the emerging architectural and IT management requirements being formulated by the Congress and OMB, interpreted by GAO, and useful to the CIO. We would like to think that we have an initial guidance formulation that is positive, constructive, and comprehensive. The many comments received have contributed significantly to this document.

None — General Observation

Name: Vaughn, Ohio Field Office
Comment:

The subject guidelines provide useful concepts and goals. It appears very well thought out and, if achieved, will result in a sizable savings in Information Management expenditures while improving the IM capabilities provided to DOE and contract employees within the Department. I feel that we must now develop specific plans for the various parts of our DOE infrastructure, including milestones and measurements of our progress.

Thank you for the good work, and now we have the real nuts and bolts of specific action items and timelines to put together.

Action Taken:

Thank you. Publication of Guidance is a necessary but not sufficient contribution to improving IT management within DOE. There are other elements, including performance measurement, which must be put into

place. The Guidance authors reviewed your comment and concluded that there were other elements that needed to be in place to achieve architectural and business objectives. These have been added in Section 4.

None — General Observation

Name: Wells, RW
Comment:

In order to provide relevant guidance to Program IA efforts, and thereby ensure a successful Departmental IA, the guidance document should, but does not, provide guidance to facilitate a Program Office's ability to:

- Define the scope of Program-level Information Architectures
- Conduct IA planning, including establishing objectives, determining resource requirements, establishing an IA management team, and determining schedules
- Identify Critical Success Factors
- Identify and adopt specific methodologies and approaches (references to structured versus unstructured approaches is too ambiguous)
- Conduct baselining activities
- Develop Programmatic business models
- Define the Program's information sub-architecture
- Define the Program's data architecture (e.g., guidance on defining entities, attributes, and relationships and the relating these entities to business functions)
- Identify tool kits applicable to, or already available within, the Department
- Define technology platforms (e.g., level of granularity)
- Formulate implementation strategy and plans.

Action Taken:

True. The types of assistance and help listed above are more appropriate for inclusion in a "How To" manual which is under development. An initial first cut of this manual is already on the web. Your comments, above, and a review of the manual would be appreciated.

The diversity of business needs and possible solutions within the Department preclude detailed instructions from centralized staff offices. The IMPACT approach is to identify suitable sources of training, support seed or pilot projects in an assistance mode, and provide a means of sharing techniques and lessons.

None — General Comment

Name: Wells, RW
Comment:

In order to enhance the relevance and readability of the guidance document to Program Offices and other sub-organizations within the Department, OCRWM recommends reformatting/rewriting the subject document to address IA guidance in the following sequence and structure [four major points follow]:

1. IA Planning
- Planning initiation steps
- Critical Success Factors
- Principles
- IA Team establishment and responsibilities
- Resource requirements
- Project planning
- Standards adoption/change control

Action Taken:

The suggestion was very seriously considered. We reviewed the Applicable References section and found some of these points covered there and did not require duplication in Guidance. Others were deemed to be more appropriate for training activities which should be formulated by local architecture planners and business process owners. Still others, like critical success factors, should be identified locally. They are closest to the problem and more capable of determining suitable approaches. Numerous documents are available for these purposes. Under the decentralized architecture concept, they have the freedom and the responsibility to formulate their own ways of implementing their program.

Page #	Section Title & Identification	Comments/Resolution
None	General Comment	**Name:** Wells, RW **Comment:** In order to enhance the relevance and readability of the guidance document to Program Offices and other sub-organizations within the Department, OCRWM recommends reformatting/rewriting the subject document to address IA guidance in the following sequence and structure: 2. IA Roles and Responsibilities - Department-Level IA - Sub-organization-Level IA **Action Taken:** We have made several changes to the pre-publication draft to implement this suggestion but did not want to specify "how" "sub-organizations" would develop or implement their IA programs. For example, should "suborganizations" be determined by a site listing, a business area listing, or a functional staff listing. Each has its merits and the user/implementor is the best judge of "how" they want to structure their programs.
None	General Comment	**Name:** Wells, RW **Comment:** In order to enhance the relevance and readability of the guidance document to Program Offices and other sub-organizations within the Department, OCRWM recommends reformatting/rewriting the subject document to address IA guidance in the following sequence and structure: Using the National Institute of Standards and Technology (NIST) pyramidal architecture representation as the organizing framework, present guidance structured by each sub-architecture layer. In each section address 1) Department-Level IA situation, 2) Sub-organization guidance to ensure successful IA development and consistency with Departmental efforts.

- Business model sub-architecture development and management guidance
- Information sub-architecture development and management guidance
- Applications sub-architecture development and management guidance
- Data sub-architecture development and management guidance
- Technology sub-architecture development and management guidance

Action Taken:

The DOE IA Conceptual Model was derived and adapted from the NIST model, referred to. These models are static models which suggest that the layers are relatively independent and can be addressed individually. In fact, that is only partly true. The layers also have inter-connections and linkages to some or all other layers. There is an interconnection among the layers which must be accounted for. As stated above, some of these require treatment as "what" problems and others as "How To" solutions. More importantly, the guidance should come from those closest to making the business and technology investment decisions consistent with a broad guidance formulation as presented in the latest version of Guidance.

None — General Comment

Name: Wells, RW
Comment:

In order to enhance the relevance and readability of the guidance document to Program Offices and other sub-organizations within the Department, OCRWM recommends reformatting/rewriting the subject document to address IA guidance in the following sequence and structure:

4. Formulation of Implementation Strategy and Plans

Action Taken:

The issue of technology vision, strategy, policy, and plans are being addressed in other forums such as the Executive Council for Information Management, the

Page #	Section Title & Identification	Comments/Resolution
		Information Management Council, and others. The purpose of this guidance is to provide these different decision making bodies in the Headquarters and the field with a common set of terms and concepts such that they can make reasonable investment decisions.
None	General Overall Comment	**Name:** Kane, FM-30 **Comment:** The document's intentions are vague and will confuse the reader. The title, "Information Architecture Volume III, Guidance" leads us to believe that the document's intentions are set guidelines on an information architecture. That would include Software and Hardware guidelines along with the process to Design, Develop, and Implement Information Systems. This process would naturally include identifying people and responsibilities. Instead, we found a document that talked about Information Systems as a concept - basically, defining an Information Systems concept without guidelines, standard practices, or technical guidance that should follow as stated in Section 1.1, Purpose. **Action Taken:** Additional material was included in Sections 1 and 4 to clarify the purpose and goals of this document. In this revision, the responsibility for hardware and software selection, for example, is a matter for the responsible architects and business process owners to fulfill. There are a large number of acceptable (and useless) design, development, and implementation approaches, depending on the nature and scale of the endeavor. We declined to establish a "one size fits all" approach. For example, different approaches are needed for traditional and object oriented applications. We would not propose that one be used for both types of designs. Nor would we propose that implementation guidance can be dispensed independent of on-the-ground legacy issues and investment priorities. These considerations further strengthened our confidence in the decentralized architecture approach.

Page #	Section Title & Identification	Comments/Resolution
None	General Comment	**Name:** Coffman, EH **Comment:** I can certainly support IA in its principles for good system design, etc. I love mom and apple pie. ... In reviewing Volume III, I note that it continues in the tradition of the previous volumes of this series, it makes very little sense. **Action Taken:** The latest version is intended to expand on "love Mom and apple pie" by increasing the description of systems and infrastructures, providing criteria for determining whether one has replication or redundancy, and similar useful approaches. The Guidance authors also added a useful architecture reference in the Recommended Reading list concerning the National Information Infrastructure (NII) which might be of more interest and value.
None	General Comment	**Name:** Coffman, EH **Comment:** This material is very difficult to read due to unusual statements such as the above quotes and paraphrases. The pseudo academic writing style further obscures any point to the Information Architecture products. I think that an Information Management professional reading the IA material would conclude that DOE has a firm grasp on the fashionable language in Information Management theoretical circles and no experience in writing or building systems that actually work. Since we both know that DOE and more particularly HR has the skills to produce both good writing and good systems I think it is a shame to publish such poor quality work. **Action Taken:** Systems that actually work are usually those closest to the user. Documents that provide guidance for several out-years should not inhibit designers and developers

from adopting useful business solutions. The other comments received on a pre-publication draft validate that the quality is sufficient for the scale and complexity of the problems being addressed. Perhaps this revision will be more to both of our quality standards.

None — General Comment

Name: Coffman, EH
Comment:

Appendix A says Information Architecture References, but I found no references in the text, did I miss them?

Action Taken:

The appendix was introduced but not further elaborated upon. There are several references made to aspects of the ITMRA and the Telecommunications Act of 1996. There was no intent to provide a detailed cross-itemized list of content and applicable references.

None — General Comment

Name: Buchanan, DP
Comment:

In general, the document is well written and informative regarding the concepts of information architecture, but I think for a "guidance" document it is missing a lot. After reading it several times and trying to apply it to the National Security's system/projects, I'm still not sure exactly how to implement it. I think the document would be much more useful if it provided examples on how an existing office in operation could apply these concepts.

Overall the document is good at describing what information architecture is and its different components, but it severely lacks how one goes about developing and maintaining an architecture for their own organization.

Action Taken:

Your observation is one that several others have made about the document being light on exactly how to do IA. This has been somewhat of a quandary since over a year ago. Originally the guidance was written with a much more "how to" tilt but many advised that

Page #	Section Title & Identification	Comments/Resolution
		Guidance should only identify "what", not "how" or "where." We have a draft IA Manual and Tool Kit (referenced in the Guidance) which will be much more explanatory on "how" to achieve a minimal IA in whatever organizational level it applies. Your comments on this very preliminary draft would be appreciated. Near the end of this year, there will be a shift in IA program emphasis to assistance and education as well as getting more into the assessment of "Goodness of Fit." The beginnings of an IA assessment that will plug into the INFOTIPS and will represent the IA input for the capital planning process as required by the ITMRA is also under way.
None	General Comment	**Name:** Buchanan, DP **Comment:** They should think about providing an example of how an office initially establishes an architecture, something very simple. What came to my mind was a car manufacturer where the business mission would be to build cars, their information could include engineering, marketing, financial, etc. Their applications may be the engineering design systems, the automated production assembly line, the financial system, etc. Their data may include part numbers, assembly process steps, sales data, survey results, etc. The technology would include the actual robotics, etc. Using examples helps the users to visualize these intangible concepts in action. They could suggest that each office schedule a workshop where key personnel participate in defining each layer for their own organization. This may be a good idea for NS. **Action Taken:** This suggestion will be considered for the proposed "How To" manual, now in preparation.
Page 1-1	Section 1, Para 1.1 Purpose	**Name:** Crowl, HR **Comment:** Starting right here, I had trouble following this product past the eight guiding principles, i.e., chapter 3 doesn't

seem to be a standard, chapter 4 seems like non-technical guidance, and section 4.5 refers to standards.

Action Taken:

This section was redrafted and re-organized in response to your suggestions.

Page 1-1 and Page 4-6

Section 1, Para 1.1 Purpose and Section 4.4.1, Methodologies

Name: Dyxin, CH
Comment:

The principles for guiding a direction for DOE in implementing a corporate IA are well stated. However, this guidance document appears to be written with the intent of formulation of DOE policy for implementation of a Departmental IA.

For instance, section 1.2, Applicability, contains reference to entities, including DOE contractors, within the Department that this guidance is applicable to and which are also excluded from this Guidance. The intent of Guidance documents are to provide guidance and NOT mandatory direction or policy. They should be utilized as reference. If this document is intended as guidance, we recommend that this section be removed or rewritten with the intent that the guidance set forth in this document is intended to be utilized by Departmental entities as reference only in the development and maintenance of an IA in the conduct of their business.

The same is true for other references within this document as in section 4.4.1, Methodologies, page 4-6. Note: It appears that this imposes the use of this IA guidance as a "best business practice" within the Department.

Action Taken:

An architectural approach to solving business problems and improving the cost-effectiveness of business processes is an implied "best practice" in the ITMRA. As stated in response to suggestions in earlier drafts of this document, this guidance is not the same as the directives that are published requiring mandatory (or else) compliance. We are glad that the consistency of

this helpful approach is seen throughout prior version and, in particular, this document version.

Page 1-1 — Section 1.2, Applicability

Name: Coffman, EH
Comment:

The definition of a corporate system has two characteristics: it only satisfies part of the enterprises needs, and it is required by law, regulation, or sound business practice. This may be accurate, but I think the normal distinguishing characteristic of a corporate system is that it crosses physical and organizational boundaries to accomplish some broader management purpose such as following the money as in budget and accounting systems.

Action Taken:

True. The definition has been changed.

Page 1-1 — Section 1.2, Applicability

Name: Coffman, EH
Comment:

"A departmental corporate system comprises the Department's DCSA..." [Departmental Corporate System Architecture]. The definition is circular at best, nonsensical at least.

Action Taken:

Appropriate changes were made.

Page 1-1 — Section 1.2, Applicability

Name: Kane, FM-30
Comment:

1. Why would we not have guidelines for standalone applications? The document describes a systems consisting of at least two processors.

2. Do standalone applications not also have to follow DOE standards?

3. Don't we also want them to be compatible with some of our existing systems in case we may want to exchange data from these applications to our larger

systems or corporate systems?

Action Taken:

1. At least two processors were specified, one of which might be server, to describe the scale of architectures of primary interest in this document. Standalone desktop applications are but a minor configuration in the many possible configurations existing in DOE architecture.

2. Standalone applications were not excluded from applicability in this document nor in the published DOE standards documents. The use of "also" in the observation, above, is unclear.

3. Compatibility of standalone applications with larger systems is an essential concern which is why the characteristics include such features as shareability, accessibility, and interoperability. Additional coverage was added to include consideration of new technologies into the legacy architecture.

Page 1-1 — Section 1.2, Applicability, Last Several Paragraphs

Name: Kane, FM-30
Comment:

The last several paragraphs confuse the reader as well. Is the Department saying that the current documents that guide information architecture development exclude these areas and this document will address the guidelines? "The Departmental infrastructure resources accessed and employed by these excluded uses are, however, included in these guidelines."

Action Taken:

The wording in this part of the guidance was re-considered and changed.

Page 1-1 — Section 1.3, Document Organization

Name: Kane, FM-30
Comment:

From the description of this section, we were expecting the chapters to explain procedures, guidelines, practices, and responsibility and we did not find that in reading the

Page #	Section Title & Identification	Comments/Resolution
		detail under each paragraph. **Action Taken:** The introduction to this section was revised as suggested here and by Crowl, above.
Page 1-2	Section 1, Para 3	**Name:** Andrew, Pantex **Comment:** I suggest taking the second sentence off of the definition for a system. As written it leaves out things I think of as a system (i.e., a standalone PC running a specific application) and the first sentence does a good job of defining it by itself. **Action Taken:** This sentence was revised to accommodate similar suggestions.
Page 1-3	Section 1.3, Document Organization	**Name:** Crowl, HR **Comment:** Change reference to Chapter 2 contents description to read "... principles to be used in evaluating <u>effective</u> design and performance ..." **Action Taken:** Done.
Page 2-1	Section 2, Principles	**Name:** Kane, FM-30 **Comment:** 1. This section is very, very high level and ambiguous. It is up to the user to interpret the meaning and does not state parameters as much as it provides broad text book definitions. 2. It does not address or point out challenges of developing information systems for the Department of Energy as much as it repeats a general definition. 3. Nowhere do we see who is responsible for the

principles or guidelines or how to measure and see if the responsible party is meeting the principles.

4. If the Department wants the principles to become common practice, it needs to define something that is tangible and easily verified. If we remain with a generalized approach, we may never be able to verify or assess responsibility.

Action Taken:

1. The Principles are intended to be guides to design and implementation, not as a specification. The policy of decentralized architectures discourages imposing detailed specifications from the departmental level. Even the standards which should be used are developed and approved based on widely participation as provided for in the Standards references in Appendix A.

2. Just providing a narrative description of the entire DOE architecture (present or future) is a formidable task. Since this document is not intended to be a "How To" manual, there is no need to try to provide problem descriptions or "lessons learned".

3. The Department, in its leadership and approval roles, is responsible for the Principles. The CIO, in coordination with other information decision making bodies apply them as needed.

4. The decentralized architecture policy places responsibility for architectures and their implementations at the appropriate decision-maker level. The trend continues to be toward performance based measures to indicate compliance.

Page 2-1 — Section 2, Principle #1

Name: Kane, FM-30
Comment:

1. We thought we would find out how the systems and architecture will be centered around the user. Instead, we found a definition on connectivity inferring that this is more hardware than information oriented.

2. The definition given is very weak and we have no idea what the accompanying diagram does to enhance the reader's understanding. The diagram appears to be a cross between types of systems and people, indicating support needs.

    a. How can we tell the support needs without knowing the purpose of the development?

    b. How can we assign priorities such as High, Medium, and Low and assess whether an effort is basic or sophisticated if we don't know what the approach for connectivity is?

Action Taken:

1. In fact, the two views presented are (a) the user-centric view and (b) the technology view. Connectivity is more than hardware; it is designs, standards, and components.

2. True, as the title indicates, there are a wide variety of support needs that the architecture must satisfy. This is what has contributed to the complexity of the current architecture. What the reader is presented with in this one principle is a single perspective that addresses the user and the customer - a very essential teaming to meet mission essential business needs.

    a. The needs for and purposes of development are to be determined either locally for smaller scale business systems or collectively for infrastructure capabilities. We expect that business cases will identify the needs to be met and affordable solutions to be implemented.

    b. The use of "high," "medium," and "low" are not priorities; they are usage levels which were subjectively identified to show differences.

Page 2-3 — Section 2, Principle #2

Name: Kane, FM-30
Comment:

The concept is a good one but again we believe the

document can be improved.

1. One great benefit of using modular components is to isolate the point of failure on hardware and quickly replace the components without having the expense of replacing the entire system.

2. In software, modular components are designed so they can be used for current an future development (for example, Year 2000 conversion). If the function is written correctly, it can be placed in a software library and reused in development. If the functionality changes, there is only one place in the code that needs to be changed instead of changing five separate applications. Who will make sure development managers adhere to reuse or modular design of code?

Action Taken:

1. True. The text has been changed.

2. Reuse is encouraged but is not a compliance checklist item. We asked many people where such an authority on the cataloging and reusability of code for DOE's diverse software inventory should reside. The response was that local means should be developed with the ability of local developers to locate similar code for similar components and functions across the department. These means must be put in place and then evolved as demand would justify.

Page 2-3 — Section 2, Principle #2, Second Paragraph, Third Sentence

Name: Eckhart, CR
Comment:

Delete all after ..."resiliency."

Action Taken:

This information was retained because it is essential that

Page #	Section Title & Identification	Comments/Resolution
		the contribution of modularity be understood as it affects design and useability characteristics of an architecture.
Page 2-3	Section 2, Principle #2, Fifth and Sixth Paragraphs	**Name:** Eckhart, CR **Comment:** Move these two paragraphs to Section 4.5.2 and 4.5.3, respectively. **Action Taken:** These paragraphs were retained in Principle #2 because even though the principle deals with modularity, the desired overall architectural effect is to achieve improved integration. Standards is one means of making integration possible.
Page 2-4	Section 2, Principle #3	**Name:** Kane, FM-30 **Comment:** Again, nice definition but what are the standard formats? What hardware? What software? If we want everything to work together, we have to define the boundaries. **Action Taken:** Since the identification of data elements and file structures have not yet been determined, providing specifications for formats is premature. We added the technology boundaries to Section 1. We identified the organizational boundaries in Volume II, "Baseline Analysis". We identified the standards boundaries in the DOE standards documents. We will identify the future vision within these boundaries in Volume IV, "Vision." It took time an there is still more to do but the desired boundaries are being established.
Page 2-4	Section 2, Principle #3, Second Paragraph	**Name:** Eckhart, CR **Comment:** Recommend that the standards related material be

moved to Section 4.5.3.

Action Taken:

It is difficult to discuss open systems without some reference to standards that need to be considered for a particular instance of an open system. The emphasis in this part of Guidance is on describing the wide latitude that DOE organizations have in reconciling the open system principle and their choice(s) of Departmental standards and products to achieve their design and performance objectives. The most important concern being addressed in the proposed material for relocation is that the desired open systems behaviors are about information sharing and interoperability, not just products or standards. We have chosen to retain this material where presented in the draft to give it the intended emphasis.

Page 2-5 — Section 2, Principle #4

Name: Kane, FM-30
Comment:

This section provides definitions with no guidelines. How is security going to be handled and who is responsible?

Action Taken:

See Appendix A, Information Architecture References for detailed security policies and procedures. Process owners and data stewards might be a good starting point.

Page 2-5 — Section 2, Principle #3, First and Second Paragraphs

Name: Eckhart, CR
Comment:

Recommend moving these two paragraphs to the Standards Section.

Action Taken:

Again, it is difficult to discuss standards-based open systems without some reference to the benefits of

standards that need to be considered for design and behavior of an open system. This paragraph advocates the practice of developing well structured architectures within the framework of standards. It suggests, also. that mere compliance with a given set of standards will not, by itself, result in a well structured architecture. Only after design and performance issues have been resolved can developers select the appropriate standards from the set adopted by the Department. If the existing adopted set is not complete enough for a particular instance, the references can be used by the developer to nominate additional or alternative standards for consideration.

Page 2-6 — Section 2, Principle #5

Name: Kane, FM-30
Comment:

Good point and this is the first step. As a guideline, this principle must also address the standards for defining, storage, retrieval, and transfer of data.

Action Taken:

DOE standards references are identified in appendix A.

Page 2-7 — Section 2, Principle #6

Name: Kane, FM-30
Comment:

In order to have DOE wide access to information, you must provide the parameters to insure access. Creating standards for hardware and software, especially with communications packages, would be the first step in creating DOE wide access. What standards do you want developers to follow?

Action Taken:

Developers should nominate a standard for departmental adoption or else establish one using the standards adoption process now in place as identified in appendix A.

Page 2-7 — Section 2, Principle #6

Name: Kane, FM-30
Comment:

This document must state the standards. Without a clear definition just stating it must be accessible, DOE wide opens interpretation to the developers and connectivity will suffer. There are too many platforms and communication media out there. We need to select a communication standard.

Action Taken:

Not true. Standards are identified is a separate document as shown in appendix A. Just as there are many platforms and communications alternatives, there are numerous communications standards and protocols, depending on performance, cost, and throughput needed by each site or program area. The communications required depends on the user needs and technology components needed to satisfy those needs. The difficulty of setting any one standard for the Department is that there are other standards that would also have to be adopted such as those at a backbone level, a WAN for campus type sites, and LAN standards for use within a building or communications segment. The approach adopted within DOE is to decentralize these kinds of design and performance decisions and to address cooperative interoperability at the Departmental level. Making a common set of communications carriers available who provide the range of services needed by the Department (such as TELIS) is one way of improving overall interoperability at a favorable cost.

Page 2-9 — Section 2, Principle #7

Name: Kane, FM-30
Comment:

This document is saying that systems must be user friendly. We also need to address the issue of cost as a measure of efficiency. This is critical to accurate budget and business case development.

Action Taken:

Cost IS an important element in the capital investments in an architecture. So are benefits. These issues should

Page #	Section Title & Identification	Comments/Resolution
		be treated in a separate but related document that can meet the strategic IM planning needs of the Department.
Page 2-9	Para 4	**Name:** Andrew, Pantex **Comment:** Beginning with "For unclassified information": Circular A-130 states that all Federal information is sensitive and must be protected to some level. This seems to contradict this paragraph that states "the right-to-know should be presumed." Further investigation into the intent of A-130 might be a worthy investment. **Action Taken:** We did as suggested. The thread running through all of the principles is that we have an authorized user oriented architecture with capabilities such as encryption, certification, firewalls, physical isolation, and a variety of other possible means to make "the right to know presumed" valid.
Page 2-10	Section 2, Principle #7, First Paragraph	**Name:** Eckhart, CR **Comment:** Recommend deleting this paragraph. **Action Taken:** This paragraph placed additional emphasis on ways that the architecture can be used to support improved human/computer interoperability in large architectures. The paragraph will be re-written to emphasize the need to provide efficient human interfaces with greater regard for meeting user and business process needs. In view of the fact that DOE architecture will become even more hybridized in terms of traditional command line instructions as well as object oriented procedures, it will become even more important that the user's "fit" with the systems be highlighted. Objects and intelligent agents must be harnessed to serve the needs of users and the business; unless there is advocacy for the user somewhere within a developmental effort, the result can very well be unusable as well as expensive - even if it is

Page #	Section Title & Identification	Comments/Resolution
		standards-compliant.
Page 2-10	Section 2, Principle #8	**Name:** Kane, FM-30 **Comment:** This seems to define the internal structure the Department wants to establish. If this is to be done, standards must be identified. If we don't, we will end up with 10 different structures and systems that most likely will not be able to communicate to each other. **Action Taken:** Standards are identified in appendix A.
Page 2-11	Chart 2-3, Service Message Integration	**Name:** Andrew, Pantex **Comment:** Principle #8 seems to deal with interoperability yet the chart deals with only one aspect, messaging. The following might help clarify the intent for interoperability beyond messaging: a. If the word "Message" were removed from the chart title b. A box appeared below "EDI" that said "Web" c. Within the "Server" box additional circles were included besides "Mailbox" these might include "Web pages" and "Applications." **Action Taken:** a. Done. b. Done. c. Done.
Page 2-11	Section 2, Principle #8, Second Paragraph, Second	**Name:** Eckhart, CR **Comment:** Who will address redundant efforts and implementation gaps and when will it take place?

Page #	Section Title & Identification	Comments/Resolution
	Sentence	**Action Taken:** Agreed, the paragraph is not as specific as we would like. At this point in time, however, there are numerous initiatives under way that will collectively meet these architectural "requirements". For example, there is work under way for a Capital Investment Process that would look at the architectural and business needs of the Department. The identification of process owners, advocates of business solutions, is also being initiated. An IA "How To" manual is under development and is posted to the DOE Home Page for comment and proposals from the field. Nomination of standards to be adopted can proceed because a process has been put into place. This guidance to the Department serves to increase awareness that the Departmental strategy of "Centralized leadership and decentralized architecture development" requires many new means of achieving changing business goals.
Page 3-1	Minimal Design Characteristics	**Name:** Crowl, HR **Comment:** Why are Design Characteristics here? Isn't this technical guidance? Where are the standards referred to in the first paragraph on page 1-1? **Action Taken:** The first sentence in the first paragraph was reviewed and found sufficient to answer the question. This is guidance suitable for the department but does not constitute technical guidance that prescribes or specifies all the details that one may need at a specific site, business are, or in a specific application or system. The first paragraph on page 1-1 was revised as stated above. Section 4 includes an overview of where standards fit within the architecture but specific standards can be identified in the references in appendix A.
Page 3-1	Section 3, Minimal Design Characteristics Third Paragraph,	**Name:** Eckhart, CR **Comment:** Is "decentralized information architecture management"

Page #	Section Title & Identification	Comments/Resolution
	Second Sentence	a feasible concept? **Action Taken:** Prior to the wide spread use of distributed applications and reliable telecommunications, the idea of decentralized architectures was difficult to implement. Now, with modifications to traditional centralized architecture policies and practices, decentralized architectures are possible. The practice is feasible if there is a blend of coordinated leadership and mutual cooperation intended to achieve improved interoperability and information sharing throughout the Department. It is increasingly feasible as capital investment decisions are made on a departmental basis for numerous sites in a coordinated fashion. Examples of DOE process owners taking responsibility for decentralized business processes and technology implementations include the Consolidated Human Resources Information System (CHRIS), DOCS, and enterprise architecture planning. Today, given the complexity and diversity of the DOE business and customer information requirements as shown in Volume II, "Baseline Analysis", the centralized architecture control model must be adapted to allow more flexibility and responsiveness consistent with good business practices at all DOE locations.
Page 3-1	Section 3-1, Minimal Design Characteristics	**Name:** Coffman, EH **Comment:** Section 3.1 contains a list which appears to have no particular order. Is this intentional? **Action Taken:** Yes. The text has best modified to explain the absence of priority or order.
Page 3-1	Section 3, Minimal Design Characteristics	**Name:** Buchanan, DP **Comment:** Another example could be helpful in Section 3, where thirteen minimal design characteristics are defined, but there is no real guidance on how to use them. There

should be a section which explains how these characteristics can be applied, such as at critical decision points in a systems development life cycle there could be a checklist of these characteristics where the system is given a score. A scale should be established and defined where by a system can be rated against the ideal system. For instance, for maintainability, scalability, adaptability etc. an ideal system would be rated 5, a 3 may mean the system is acceptable with some work, a 1 may mean the system fails. Also for each characteristic a determination should be made if it is even applicable to the system in review.

Action Taken:

IMPACT members and others are working on an architecture change assessment methodology and capital investment planning methodology. Inclusion in this document would have been premature. The description of tools such as these seems more appropriate in another, related document.

Page 4-1 — Section 4.1, Roles and Responsibilities

Name: Kane, FM-30

Comment:

Reading this section still leaves us unclear as to who is responsible and what they are responsible for. Where are the tangible standards that someone can be responsible for? Are the standards going to be owned by the CIO, ECIM, and IM and by what vehicle are they going to make these standards and enforce them?

Action Taken:

1. Responsibilities for standards employment is a local responsibility. The adoption, retirement, and change process is identified in standards references in appendix A.

2. Once a standards set has been identified, those in non-compliance have the responsibility for resolving problems associated with non-compliant transfers and interface requirements. In the past, such non-compliance had no penalties. This guidance places

Page #	Section Title & Identification	Comments/Resolution
		the responsibility for these issues on those who are non-compliant with adopted Departmental standards and design alternatives.
Page 4-2	Section 4.2, Framework	**Name:** Kane, FM-30 **Comment:** While the framework is defined, there are no implementing standards or guidelines referenced. At a minimum, this framework must identify platforms, user interfaces, data structures, development standards (function specifications, design specifications, test, etc.) along with responsible parties. **Action Taken:** The references in appendix A meet most of these observations. The Guidance framework is not the last that will be needed to develop a mature architecture program. The new architecture program elements introduced in chapter 4 establish the start toward this maturity.
Page 4-2	Section 4.1, Roles and Responsibilities, First Paragraph	**Name:** Eckhart, CR **Comment:** The statement says that the roles and responsibilities are described below but I could not locate them. **Action Taken:** The paragraph has been relocated to the position as the third paragraph. The fourth paragraph identifies them.
Page 4-2	Third Paragraph	**Name:** Ladesic, FE-01 **Comment:** In a Department as diverse as DOE it is necessary to decentralize the application of the ITA to business functions. I think the organizations have the talent in place to handle this. But despite decentralized implementation there still needs to be a centralized

Page #	Section Title & Identification	Comments/Resolution
		Departmental authority that provides policies, guidance and standards called for in the ***ITA (page 211)***. This has to be the CIO. You can decentralize the implementation but you cannot decentralize the responsibility for a successful program. Decisions on standards as called for in the ITA will not be easy but must be done if it is to work. Acquiring conformance to the standards DOEwide will be harder still. **Action Taken:** We agree with your assessment about decentralized architectures and the need to provide broad guidance and policies. At least there is movement toward useful solutions.
Page 4-6	Bullets in First Para	**Name:** Andrew, Pantex **Comment:** No definition for “Network Technology." How does it differ from “Telecommunications Network Technology." Likewise, no definition for “Processor Platform Operating System” is provided. How does it differ from “Processing Platform?" **Action Taken:** A description of Network Technology was added which makes the necessary distinction. Operating systems are not platforms and we did not feel the need to describe the obvious and generally acknowledged difference.
Page 4-7	Para 4.3.1, Paragraph immediately following chart.	**Name:** Andrew, Pantex **Comment:** This section seems to lose the thought that stronger analysis needs to be applied for larger, more complex, or critical components. Suggest changing the last sentence of the paragraph to read: “Structured approaches that provide the benefits of analyses are the preferred means of changing the architecture especially when dealing

with a complex architecture or larger information management investment.

Action Taken:

Structured approaches are not preferred just for larger or complex systems. We believe the text suggests that the analysis should be appropriate to the problem being solved and the availability of suitable tools and skills.

Page 4-10 — Section 4.3.4, Implementation

Name: Buchanan, DP
Comment:

In section 4.3.4, Implementation, six configurations are defined that should be implemented across the five layers of the architecture. Again it is unclear on how exactly to do this. They should include a graphic illustrating this idea and provide examples. Also, the definitions are confusing. For Departmental Infrastructure they include management planning, policy and program integration, standards management and technology assessment, which I would not normally consider part of infrastructure, but part of Management & Planning systems.

Action Taken:

The six bullets are not configurations; they are states within different phases of system evolution. Examples of these will be considered for presentation in the IA "How To" manual now in development. Suggestions of what a suitable figure might contain would be appreciated.

A definition and description of the Departmental infrastructure, its characteristics, and its relationship to the National Information Infrastructure (NII) has been added. We have chosen not to use Guidance as a means for articulating the organizational and process aspects of an infrastructure. The IMPACT member have; however, developed work products at IMPACT IV, Santa Fe, NM, which are on the DOE Home Page for the Business Subarchitecture, which includes many of these as either essential functions or core competencies.

Page #	Section Title & Identification	Comments/Resolution
Page 4-12	Mature	**Name:** Andrew, Pantex **Comment:** Many consider xBase to fit in the category of Obsolete. I suggest removing xBase as an example and leave the two remaining examples. **Action Taken:** Done.
Page 4-13	Section 4.3.5, Levels of Technology Maturity, Obsolete	**Name:** Eckhart, CR **Comment:** Recommend deleting the last sentence containing examples of obsolete technologies. **Action Taken:** These are representative component examples that most of the Department would agree with and does not restrict the enumeration to just out-dated systems. We did, however., replace 30486 platform chips with 200 MHz to reflect the fact that the Pentium (as well as the MacIntosh) are selling several computer chip speeds using the same chip.
Page 4-17	Section 4.5, Information Architecture Standards	**Name:** Crowl, HR **Comment:** Suggest that Standards be separated as a standalone section. **Action Taken:** Done. The Summary is also, now, a separate section.
Page 4-17	Section 4.5.1 and 4.5.2, Information Architecture Standards	**Name:** Scott, EH-72 **Comment:** In one area, however, there is some ambiguity. Section 4.5.1 conveys "standards" as being "guidance," while

		Section 4.5.2 states that "standards" are agreed upon in the DOE "Standards Adoption and Retirement Process." "Guidance," however, is agreed upon through DOE "Corporate Information Management Guidance" process. This publication should resolve this ambiguity. **Action Taken:** There is no ambiguity. The Guidance document refers to appendix A for the "approved" expression of the documents listed there. The Guidance document merely places the contents of those documents into a comprehensive architectural context.
Page 4-19	Section 4.5.2, Standards Adoption Processes, Last Paragraph, Second Sentence	**Name:** Eckhart, CR **Comment:** This appears inconsistent with Principle #3 on page 2-4. **Action Taken:** It is not inconsistent with centralized leadership where the proponents of decentralized architectures may be brought to the CIO's attention. It is not intended that there be inspections, detailed audits for compliance as in the past, nor compliance reviews for minor architectural activities. Those for who benefit from complying with the means of interoperability and information sharing deserve to know that they are not paying the cost for others who may choose diverge from the agreed Departmental architecture vision and standards. The ITMRA requires the CIO to take a Departmental view and compatibility with the Departmental architecture program is one means of doing so.
Page 4-19	Section 4.5.3, Standards, Scope, Use, and Applicability, Last Paragraph	**Name:** Dyxin, CH **Comment:** While the ITMRA gives the CIO the authority to establish a Departmental IA, the paragraph states that the DOE IA principles and standards contained in this guidance document are subject to review, audit, and reportable management performance resulting in the

recommendation for system cancellation and the pursuance of funding withdrawal. If, that in fact is the intent, then the principles and standards set forth in this document should be issued as Departmental policy and not as intended guidance. Guidance and reference documents as not intended to be subjected to this level of review nor the resultant actions contained in this paragraph.

Action Taken:

This document does not contain the "shalls," "shall nots," "shoulds," and "should nots" of a compliance directing document. Where there are already "shoulds" and "shalls," these documents are identified in the references. This document contains guidance in the form of encouraging the use of principles and recommended good practices. It provides a common departmental architecture language where none exists, now. It places the departmental architecture program in the context established in the ITMRA and GPRA as well as other statutes. It is not, however, a prescriptive document as in "must comply." The issuance of Office of Management and Budget Information Architecture guidelines may, however, result in reviews and audits by other Federal agencies. We chose not to list all of those possibilities.

Chapter 2

Guidance

(Draft)
Comments/Resolution

Page #	Section Title & Identification	Comments/Resolution
None	General Observation	**Name:** Witschey, HR-07 **Comment:** The architecture doesn't really address classified areas. **Action Taken:** The Team requested additional comments from interested parties on the need for special treatment of "classified areas" within the draft. There were no responses received indicating that some special treatment was required. As indicated by other comments and our resolution of them, the coverage and consistency of security and access topics were reviewed once more and minor changes were included.
None	General Comment	**Name:** Martin, HR-08 **Comment:** We should give examples of what not to do in this document as we surely do not describe (i.e., give guidance on what to do) the architecture that a given Program Office/Business Line should/must use. I understand flexibility is key; but, in the case of Administrative Systems we should be able to describe the DOE architecture..... If we have multiple Architectures for Projects, Tracking Systems, Procurement, Financial, Personnel, etc. then what will we have? [CHAOS] **Action Taken:** (1) The level of specific guidance for a near term perspective should likely originate from the Planning function within the broader context of the architecture. Specifying do's and don'ts are risky items to be put in this document because they are so temporal that they could drastically lower it's useful life span and rapidly invalidate it. To enumerate the even categories of what should not be done within the entire baseline would require a formidable document. (2) Architectural guidance is a governance component, which must be stable for a few years at least so that technical and acquisition plans can be formulated and

budgeted for. For example the principles were already crafted approximately two years ago and are just as valid now as two years ago...perhaps even more so. The high level "whats" that form the future essence of DOE's ability to do things like develop the common data dictionary/ definitions are dependent upon the conveyance and acceptance of this guidance, which hopefully will result in much more effort being expended to architect. There are differences of opinion as to whether or not an architecture can result between and amongst multiple subsidiary architectures but the Information Management Planning and Coordination Team (IMPACT) does not believe that it can happen any other way in our Department. We will with your assistance; however, attempt to add an example of a representative corporate system architecture in the forthcoming Vision document.

None — General Comment

Name: Orosz, HR-422
Comment:

This document would benefit from tighter editing. The document appears to be too lengthy and to assume readers of the document will not have a working understanding of what is and what is the purpose of an information architecture. As the concept of an information architecture has been around for at least 2-3 years in DOE, is understood around much of the DOE complex, and in other Federal agencies; it appears that much (not all) of the information in the first three sections does not “break new ground” and in fact may dissuade the reader from getting to Section 4 of the document which as mentioned below seems to be where the most information is contained. You can better talk to the non-IM folks by tightening up your document. They are not necessarily going to read a document that is too repetitive. But too repetitive ruins the message -- it isn't quantity of pages but what's on them that constitutes the value.

Action Taken:

Based on the comments received, the document will undergo at least one more round of input and editing to develop the material and to organize its presentation.

Page #	Section Title & Identification	Comments/Resolution
		As the responses from others demonstrates, there is as yet no common understanding of what the entire Departmental architecture is, should be, what it consists of, and/or how to portray it without a high cost in data collection and drawings. At the same time, we are working our way along the paths of policy, guidance, helpful how-to, and vision publication.
None	General Comment	**Name:** Orosz, HR-422 **Comment:** The first three sections could be greatly condensed and/or moved behind Section 4, which appears, in my opinion, to be where the “meat” of the information architecture is discussed. Section 4 needs to be revisited by the drafting author(s) to eliminate words that appear to be establishing DOE policy when only a DOE Directive or a DOE Manual can set policy that must be followed. Otherwise, the guidance document is likely to not meet what I understand its intended purpose to be: a non-binding guidance document which contains some good principles and GUIDANCE for DOE-wide use. **Action Taken:** The organization of the document was re-assessed and adjustments made to incorporate the thrust of these comments. The language to be used in a guidance document (compared to a policy document) should provide direction and relative preferences. While words like "must", "required", and "should" are used in both, the imperatives are quite different. Guidance suggests sound non-mandatory practice while policy imposes responsibilities that have adverse consequences if not complied with. Thus, the authority of a "must" in a policy document is a much stronger imperative than in a guidance document. We believe that readers will make extensive use of the non-mandatory nature of the guidance when it is in their self-interest and will be strongly motivated to object to policies when they limit local prerogatives excessively. In this regard, we have renamed Section 4 to "Information Architecture Program Guidelines."

Page #	Section Title & Identification	Comments/Resolution
None	General Comment	**Name:** Orosz, HR-422 **Comment:** I thought the purpose of having the Information Architecture effort for the Department was to *develop at a minimum some sort of concrete technologies for the Department-wide community to be able to interface/communicate* with/or whatever term you wish. So, it would seem at some point HR-4 via your effort has to ante up to what is the Information Architecture. (I am not a technical expert on this, BUT I CAN get some savvy labs and others in the DOE field to provide input to you.) This would preclude a January deliverable, but perhaps that is not inappropriate. **Action Taken:** The Architecture Team shares your sense of urgency about providing all the elements of the architecture framework in place at the earliest possible time. The IMPACT Team has formal, draft, and working papers about IMPACT Team products and activities on line as soon as practicable. Some of these products are being discussed over E-mail channels with attendant changes and modifications being applied near real time.
None	General Comment	**Name:** Orosz, HR-422 **Comment:** Unfortunately, as the Policy Integration Team is now chartered, *it isn't our role to define what are the specific technologies that comprise what must be followed*. One would assume that you can, *at a minimum, provide some examples* of what you are talking about in the VOLUME III Guidance. I suspect failure to do something reasonably soon will result in various information architectures already being in place at most labs/sites. **Action Taken:** The problem of interoperability between technologies is being addressed by the Architecture Standards Program Manager; the architecture standards publications include the "Information Architecture Standards Adoption/Retirement Process", "Information

Page #	Section Title & Identification	Comments/Resolution
		Management Standards Service Areas" and the "Information Architecture Profile of Interim Adopted Standards Guidance Document". The bases for these publications were derived from the IMPACT Team meetings, extensive Departmental coordination, and correspondence. They represent a successful cooperative effort between the Headquarters and the field on what has, until now, been a contentious and divisive subject adversely affecting I/T investment and interoperability improvement activities. At Santa Fe, the IMPACT Team provided its view of what the Vision architecture, including standards, should provide in either capabilities or systemic behavior. These will be provided in the forthcoming Volume IV, "Vision" document.
None	General Comment	**Name:** Orosz, HR-422 **Comment:** If information architecture policy/direction is intended, then it ought to go out as a manual and crisply state what is the policies/directions that must be followed in DOE. (I don't believe this is what is intended here.) **Action Taken:** See the response to an earlier general comment on the same subject.
None	General Comment	**Name:** Salatti, HR-433 **Comment:** If this is to be stand alone information architecture guidance, and if a survey of hardware/software platforms has recently been compiled DOE-wide, I believe it would be advantageous to include examples of those platforms that would likely be interoperable within the DOE-wide corporate systems blueprint. If there are other components of the information architecture guidance strategy that will include examples, then disregard my comments. **Action Taken:** There is no known survey of I/T components compiled since that of the Baseline Analysis. This high level

summary is being published as a separate document, Part 1 "Baseline Analysis Summary". Copies of draft versions have been on-line for almost one year and no additional comments have been received since Part 2, "Baseline Analysis" was distributed for comment. The Architecture Standards Profile and Standards Action Plan provide a more effective and comprehensive means for treating interoperability issues than do listings of hardware and software. Volume IV, "Vision" is anticipated to describe capabilities and system behaviors required throughout the Department. There is no Departmental intent to provide design schematics, required flow diagrams, mandatory data definitions, or "grand design" implementation plans to the field. From these publications, local sites and programmatic areas will have the needed flexibility to implement their visions as appropriate to them consistent with agreed upon standards, Departmental guidance, and the emerging CIO responsibilities.

None — General Comment

Name: Orosz, HR-422
Comment:

It appears that you have a clear idea where you want to go in this matter. *You need to decide whether you think each site doing their own thing relative to developing a set of data that follows general guidance is the correct way to converge OR whether HR-4 has a grand design to follow. Clearly, there is a role for the CIO to have in this process* as the ITMRA of 1996 states very clearly that is one of the things he is to assure. Part of what may be comments you have heard is the program folks don't yet appreciate that the CIO isn't prescribing how the programs and field offices are to perform their IM management functions. In fact many organizations seem quite satisfied with it. Where they want more help is in definitions of things like Information Architecture, IM performance measurement, and so on.

Action Taken:

Thank you. We believe we, the entire Architecture Team and IMPACT Team, have some pretty sound ideas of where the architecture program needs to go to converge upon increased flexibility and interoperability within the

Page #	Section Title & Identification	Comments/Resolution
		Department. There is no single grand design that is being proposed. The distribution of this draft guidance document to over 100 program, IM, and field organizations and staff is one of the ways in which we are attempting to help the CIO establish his new tone, tempo, and I/T change within the Department. In the absence of management studies for proposing expanded use of benchmarks, performance-based measures, and best IM practices, this document is intended to provide an umbrella for these management areas as and until they mature and are distributed by the responsible staff offices.
None	General Comment	**Name:** Crowl, HR-07 **Comment:** This draft reads like clay; it is not crisp and clear enough for users. Shorter sentences and more concise wording would have helped. **Action Taken:** The next draft will have numerous improvements such as these.
None	General Comment	**Name:** Orosz, HR-422 **Comment:** If you are issuing GUIDANCE then use of words such as "policy", "mandatory standards" and specific direction are inappropriate. If you wish to issue policy, mandatory/compelling standards and specific direction than it ought to be in a manual. There is no fine line. Whoever wants you to use compelling/mandatory language is fine as long as it goes out in form of a manual/order. Manuals do go through the Directives system as they do levy requirements and burden on the organizations covered by it. **Action Taken:** We understand the purposes of each of these types of documents. See our response to the same general comment.
	General	**Name:** Orosz, HR-422

Page #	Section Title & Identification	Comments/Resolution
None	Comment	**Comment:** Questions regarding what programs and sites are required to develop should first be referred to the Information Architecture Team Leader. If they are required to do so then the requirement should come out in a manual or an order. Also, if [the Department is] required to follow/use MANDATORY standards, then it is a policy statement; it is direction; and it goes in a manual. **Action Taken:** Yes. Identifying which practices are sound for common adoption is guidance. The adoption of "mandatory" standards has been replaced by the more flexible and responsive within the Department. There is no effort planned to develop an architecture manual since that is the most stringent form of direction and which would probably be impossible to secure agreement for implementation. We intend to develop an architecture program that does not require staff offices to make individual decisions about what specific headquarters, sites, and programs must do to develop and maintain sound architectures. With this guidance, the CIO has adopted a decentralized architecture approach to overcome this very I/T management short-coming.
None	General Comment	**Name:** Miller, HR-433 **Comment:** I have reviewed the subject document and found it to be very much a general, overview document. In thinking about an analogy, perhaps the Constitution of the United States is a good one. "..." It offers many good reasons why we need an architecture, espouses the virtues of standards, and suggests many good practices with which no one will argue. They may be good methodology, but will not in and of themselves automatically result in a good architecture. The document seems to leave the evolution of an architecture to the efforts of others. The document doesn't go on to elaborate such as the Articles of the Constitution would in providing a specific framework in which the general notions of the preamble can be achieved.

I believe that an architecture will only happen with involved agreement in a number of areas (e.g. standards). For example, each Program Office may select a standard encryption algorithm to protect unclassified information. That algorithm may serve the needs of that Program Office well. They may achieve all interoperability needed within their program, but what happens when we need to communicate across Programs when we've selected different encryption algorithms that don't interoperate. Who says over what breadth of activities interoperability is necessary? In other words, I believe that without further guidance/working together, it is entirely possible that different elements of the Department could continue to work their respective architectures to meet their respective requirements without their various architectures jelling into the kind of Departmental capability that we all know we need.

Action Taken:

As guidance, we have defined "interoperability" to be Departmentwide, not just program area wide.

None — General Comment

Name: Bechtel Nevada ISD Architecture Group
Comment:

The general architectural approach appears to be valid and is supported by effective guiding principles. The graphics are well designed, very appropriate, and add much to the overall document. (Areas that were recommended for improvement are addressed separately.)

Action Taken:

Thank you.

Page #	*Section Title & Identification*	*Comments/Resolution*
Page 1-1	Third Bullet	**Name:** Orosz, HR-422 **Comment:** The third bullet needs the words “to be” inserted between approaches used so as to now read: “.... and development approaches **to be** used within the Department....” **Action Taken:** Done.
Page 1-1	Section 1.1, Purpose	**Name:** Bechtel Nevada ISD Architecture Group **Comment:** "... The organization of the document could be improved. Reassess the Purpose and align the list in a logical order, then realign the document to cover these purposes in the same order. This purpose list would serve as a sort of outline for the document." **Action Taken:** Major parts of the document's presentation order and flow have been revised.
Page 1-2 to 1-6	Section 1.3, References	**Name:** Orosz, HR-422 **Comment:** Move the “1.3 References” section to the back of the document, unless the directives system mandates their placement up-front. **Action Taken:** During an earlier internal review of the draft, the placement of this subsection and its explanations of text were requested to be placed this early in the document so that readers would be quickly able to determine if it was, in fact, applicable to them. In keeping with your comments and another reading of the latest version with changes, the references were moved to the back as an appendix.

Page #	Section Title & Identification	Comments/Resolution
Page 1-3	Section 1.3, References, Item 9	**Name:** Sibert, HR-433 **Comment:** After "1995", add "..., effective August 8, 1996, rescinds the FIRMR and establishes the Chief Information Officer (CIO) functions." **Action Taken:** Done.
Page 1-3	Section 1.3, References, Item 13	**Name:** Sibert, HR-433 **Comment:** Delete the words "other purposes." and add "establishing minimum acceptable security practices for protection of sensitive information." **Action Taken:** Done.
Page 1-4	Section 1.2, Applicability, Item 15	**Name:** Shank, HR-01 **Comment:** Please change list of Item 15 to read "National Security Directive 42 dated 7-5-90, which establishes initial objectives, policies, and organizational structure to guide the conduct of activities to secure national security systems from exploitation". **Action Taken:** Done.
Page 1-5	Section 1.3, References, Item 24	**Name:** Sibert, HR-433 **Comment:** Change to read "Office of Management and Budget, Circular A-130, "Management of Federal Information Resources, dated February 8, 1996, which establishes policy for the management of Federal information resources."

Page #	Section Title & Identification	Comments/Resolution
		Action Taken: Done.
Page 1-5	Section 1.3, References, Item 25	**Name:** Sibert, HR-433 **Comment:** Delete this reference. The FIRMR was abolished by the IMTRA as of August 8, 1996. **Action Taken:** Done.
Page	Section 2, Principles 2-1, 1-1, and 4-6 Section 2, Principles and Section 1.2, Applicability, and Section 4.4.1, Methodologies	**Name:** Dyxin, CH **Comment:** 1. The principles for guiding a direction for DOE in implementing a corporate IA are well stated. However, this guidance document appears to be written with the intent of formulation of DOE policy for implementation of a Departmental IA. 2. For instance, section 1.2, Applicability, contains reference to entities, including DOE contractors, within the Department that this guidance is applicable to and which are also excluded from this Guidance. The intent of Guidance documents are to provide guidance and NOT mandatory direction or policy. They should be utilized as reference. *If this document is intended as guidance, we recommend that this Section be removed or rewritten with the intent that the guidance set forth in this document is intended to be utilized by Departmental entities as reference only in the development and maintenance of an IA in the conduct of their business.* 3. The same is true for other references within this document as in Section 4.4.1, Methodologies, Page 4-6, Note: It appears that this imposes the use of this IA guidance as a "best business practice" within the Department. **Action Taken:**

Page #	Section Title & Identification	Comments/Resolution
		1. We have carefully considered the language used in this draft and the official purposes of a Departmental guidance document. It is certainly a difficult balance to establish meaningful guidance without implying or interpreting policy requirements. Based on recent OMB guidance (from which we extracted some of the language to which you refer) there is some question on how it should be applied. In the past we'd have written an order (as you know already). 2. We included a statement as intended. 3. It strongly encourages the use of architectural principles as a "best business practice" without directly imposing specific actions upon Departmental entities.
Page 2-3	Principle #2, Modular Components, First Paragraph, Second Line and Sentence	**Name:** Orosz, HR-422 **Comment:** Recommend changing “efficient modules” to “inefficient modules”. This is what appears to be intended. **Action Taken:** Done.
Page 2-3, 4-13, and 4-14	Principle #2, (last sentence), Section 4.6.1, Architecture Standards Framework, (last sentence), and Section 4.6.3, Standards Scope, Use, and Applicability	**Name:** White, HR-01 **Comment:** The word "approved" is being used on numerous occasions, but seems to be used in conjunction with "adopted", and at least in spirit if not in language with "suggested". It seems confusing. Given that in one place we are discussing the "adoption" of standards, and indeed the IT Standards process is all about adoption, and yet we are also stating "approved" indicating that these particular standards bear some mark/stamp/vote or blessing by some higher authority. Or, as opposed to unapproved(?) standards. I understand the discussion concerning mandatory or regulatory standards, but didn't read the discussion to mean that those were what were being referred to as "approved". And then there is also

Page #	Section Title & Identification	Comments/Resolution
		the question of "approved", by who? NIST, DISA, DOE, or who? But, that leads me back to adoption versus approved. **Action Taken:** @@ Bruce and Carol were requested to provide a response.
Page 2-3	Principle #2, Modular Components, Last Paragraph, Last Sentence	**Name:** Sibert, HR-433 **Comment:** Is "approved standards" really the intent? **Action Taken:** See White's comments re: DOE approved versus adopted standards discussion.
Page 2-4	Principle #3, Systems Based Information, Second Paragraph, Next to Last Sentence	**Name:** Sibert, HR-433 **Comment:** Change to read "... without additional conversion efforts by other sites or organizations is not diminished." **Action Taken:** Done.
Page 2-4	Principle #4, Security	**Name:** Sibert, HR-433 **Comment:** I offer a reworded version of the rationale supporting Principle #4, Security while leaving the statement of the Principle as stated. [Note: The text has been omitted from this document for brevity purposes, only. It provides several statements and clauses which have been included.] **Action Taken:** The recommendation to change permissive terms into "must" type imperatives was adopted within this guidance document because they represented strong recommendations and were consistent with applicable

Page #	Section Title & Identification	Comments/Resolution
		references.
Page 2-5	Principle #5, Information As An Asset	**Name:** Martin, HR-08 **Comment:** Seven (7) actions (bullets) are spelled out... All these actions and probably more should have been accomplished in order for us to say we have an Architecture. Stating on page 2-6, "Initiatives to begin many of these efforts are already underway" is very weak. At least spell out what has been done on these actions. For example, "Establishment of consistent data definitions (at the corporate level with extensions within and across programs and sites)". This will be a monumental task. Why not say so? **Action Taken:** The text on page 2-6 was revised.
Page 2-5	Principle #5, Information Stewardship	**Name:** Orosz, HR-422 **Comment:** Also, I noted on page 2-5 under “Principle #5" the guidance states: “Sharing information complex wide NECESSITATES (emphasis added) the following actions. The use of the word “necessitates" appears to me to me stating or intending to state direction(s) in a guidance document. **Action Taken:** That is correct. They are unprioritized enumerated actions that are collectively required to begin to satisfy the Principle. There is no stated or implied "order" for anyone or any place to do so. They are identified as areas that the Department will continue to place emphasis on over the next several years. Informing them of this type of activity is why it is stated as it is in a guidance document.
Page 2-8	Principle #6,	**Name:** Sibert, HR-433

Page #	Section Title & Identification	Comments/Resolution
	Access As A Rule, First Paragraph, Last Two Sentences	**Comment:** Change to read and add "Categorization of information must be clearly stated within well-under-stood rules. Sensitive unclassified information must not be accidentally released or compromised. Classified information must be protected according to current DOE directives and national policies." **Action Taken:** Done.
Page 2-8	Principle #7, Robust Interface	**Name:** Heinig, EH-02 **Comment:** The principle is incorrectly stated. **Action Taken:** The correct statement has been inserted.
Page 2-8	Principle #7, Robust Interface, Caption	**Name:** Crowl, HR-07 **Comment:** Change to read "Human factors engineering pays off.." **Action Taken:** Done.
Page 2-8	Principle #7, Robust Interface, Second Paragraph, First Sentence	**Name:** Crowl, HR-07 **Comment:** Change to read "... engineering of human and technological capabilities across all levels ..." **Action Taken:** Done.
Page 2-8	Principle #8, Seamless	**Name:** Crowl, HR-07

Page #	Section Title & Identification	Comments/Resolution
	Infrastructure, First Paragraph	**Comment:** Change middle of second sentence to read "... applications, telecommunications and video, infrastructure, and computers." **Action Taken:** Done.
Page 2-9	Principle #8, Seamless Infrastructure, First Line	**Name:** Sibert, HR-433 and Crowl, HR-07 **Comment:** Change to read "... resources transparent to those using them." **Action Taken:** Done.
Page 2-10	Principle #8, Seamless Infrastructure, Last Paragraph, First Sentence	**Name:** Sibert, HR-433 **Comment:** Change to read " ... exchange of sensitive unclassified data ... ." **Action Taken:** Done.
Page 3-1	Section 3, Desirable Minimal Design Characteristics, First Paragraph, Third Sentence	**Name:** Crowl, HR-07 **Comment:** Change text to read "... the overall measure of the Department's information ..." **Action Taken:** Done.
Page 3-2	Section 3, Desirable	**Name:** Sibert, HR-433

Page #	Section Title & Identification	Comments/Resolution
	Minimal Design Characteristics, Security	**Comment:** Revise as follows: "... data, information, and technology ..." **Action Taken:** Done.
	Section 4 Section 4.6, Information Architecture Standards	**Name:** Orosz, HR-422 **Comment:** You may want to work with the DOE Standards Program Manger regarding the use of the word "standards" to mean either mandatory or guidance. Perhaps, she can assist us all in advising/publishing a listing of Mandatory Standards and Guidance Standards. **Action Taken:** The Architecture Team and the IMPACT Team include the Standards Program Manager. For example, Volume I, "The Foundations" shows how standards activities are incorporated within the architecture program. The publication of the Service Action Plan" and "Standards Profiles" in both distributed hard copy and Home Page formats are further evidence of this close coordination and cooperation.
Page 4-1	Section 4, Information Architecture Program Policies, Para 4.1, Purpose	**Name:** Bechtel Nevada ISD Architecture Group **Comment:** "The content here seems to have little to do with the main subject of "policy" but seems more appropriate for inclusion at the beginning of the document." **Action Taken:** The reference to "Policy" has been changed to "Guidelines" and the document's organization has been reviewed for possible improvements.
Page 4-1	Section 4, Information	**Name:** Sibert, HR-433 **Comment:**

Page #	Section Title & Identification	Comments/Resolution
	Architecture Program Policies, Para 4.1	Change punctuation as follows: First line, "... technology architecture", as used ... " and "... architecture", is an integrated ..." **Action Taken:** Done.
Page 4-1	Section 4, Information Architecture Program Policies, Para 4.2, Roles and Responsibilities	**Name:** Sibert, HR-433 **Comment:** Change punctuation to read " ... Departmental organizations, as well as ..." and " ... architecture program, is the CIO." **Action Taken:** Done.
Page 4-1	Section 4, Information Architecture Program Policies, Para 4.2, Roles and Responsibilities	**Name:** Bechtel Nevada ISD Architecture Group **Comment:** The document could be improved by including a few more details and interjecting more forceful and firmer direction. For example, paragraph 4.2 " Roles and Responsibilities" includes only a general reference to the role of the CIO. It promises to describe the responsibilities of the business and program areas, business units, managers, users, systems developers and sites within the information architecture program but it fails to do so. This document, by it nature, is a high level document and necessarily contains some theoretical information. It probably should include more specifics in areas such as roles and responsibilities of those business and program areas, business units, managers, users, systems developers and sites within the information architecture program. Without more specifics, the gap between this architectural document and those who must interface with it could be too great to bridge. **Action Taken:**

Page #	Section Title & Identification	Comments/Resolution
		We understand the desire for strong direction-giving but did not intend to publish a policy directive nor manual. We have reviewed the content for clear identification of responsibilities and have made several text changes. We are well aware, however, that organizations have many ways and methods of achieving the same objectives with very different core competencies, resource levels, and geographic responsibilities. We chose to respect those local decisions and did not attempt to be more constraining upon them, even with this guidance.
Page 4-1	Section 4, Information Architecture Program Policies, Para 4.2	**Name:** Crowl, HR-07 **Comment:** Rewrite the first sentence. **Action Taken:** Done. The Departmental Chief Information Officer (CIO) is the focal point for the information architecture program.
Page 4-2	Section 4, Information Architecture Program Policies, Para 4.2, Second Line	**Name:** Sibert, HR-433 **Comment:** Change punctuation to read " ... management structures, most ... " **Action Taken:** Done.
Page 4-2	Section 4, Information Architecture Program Policies, Para 4.2, First Sentence	**Name:** Crowl, HR-07 **Comment:** Reword to revise this awkward sentence. **Action Taken:** Done.
Page 4-2	Section 4, Information	**Name:** Crowl, HR-07 **Comment:**

Page #	Section Title & Identification	Comments/Resolution
	Architecture Program Policies, Para 4.2, Second Paragraph	Reword to revise this awkward sentence. **Action Taken:** Done.
Page 4-2	Section 4, Information Architecture Program Policies, Para 4.2, Third Paragraph	**Name:** Crowl, HR-07 **Comment:** Reword to revise this awkward paragraph. **Action Taken:** Done.
Page 4-2	Section 4, Information Architecture Program Policies, Para 4.3, Framework, Fourth Paragraph	**Name:** Crowl, HR-07 **Comment:** Reword to eliminate redundancy and difficult to follow text. **Action Taken:** Done.
Page 4-3	Section 4, Information Architecture Program Policies, Para 4.3, Framework, Business Bullet	**Name:** Crowl, HR-07 **Comment:** Reword to improve text. **Action Taken:** Done.
Page 4-3	Section 4, Information Architecture	**Name:** Crowl, HR-07 **Comment:**

Page #	Section Title & Identification	Comments/Resolution
	Program Policies, Para 4.3, Framework, Information Bullet	Switch last two sentences to improve text. **Action Taken:** Done.
Page 4-4	Section 4, Information Architecture Program Policies, Para 4.3, Framework, Applications Bullet	**Name:** Sibert, HR-433 **Comment:** Change text in third line to read " ... processes, and software and system design, ... " **Action Taken:** Done.
Page 4-4 to 4-15	Section 4, Information Architecture Program Policies	**Name:** Orosz, HR-422 **Comment:** When I read section 4, “Information Architecture Program Polices”, I obtained a better understanding of what appears to be DOE’s information architecture purpose, framework, etc. This provided me the information that was not provided in the prior three sections of the document. On page 4-4 the section entitled “4.4 Architectural Program Policies” uses the “policies” word in a guidance document. However, the language in the section does not include things that must be, shall be, or are to be done; rather words like “encouraged to” are used to qualify guidance. **Action Taken:** The title of this section has been changed to "Information Architecture Program Guidelines". Where appropriate, references to "policy" have been changed to "guidelines".
Page 4-4	Section 4, Information Architecture Program Policies, Para 4.4.1, Methodologies,	**Name:** Crowl, HR-07 **Comment:** Check the third sentence's information for consistency with OMB guidance. Informal methodologies may not be acceptable.

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	First Paragraph, Third Sentence	**Action Taken:** OMB does not provide official guidance on the use of structured or unstructured, formal or informal, or other preferred methodologies although the requirement for some sort of analytical and systematic approach is needed to meet the requirements contained in the IMTRA. This guidance statement of preferences is intended to recognize the range of capabilities (from none to extensive) that exists today and that, in the short term, those without capabilities are being encouraged to obtain them. The text discourages architectural inactivity and lack of structured approaches exhibited in some of the baselined organizations.
Page 4-4	Section 4, Information Architecture Program Policies, Para 4.4.1, Methodologies, Second Paragraph	**Name:** Crowl, HR-07 **Comment:** Revise this sentence to read "... Guide will be issued to present best business architectural practices, methods, and references." **Action Taken:** Done.
Page 4-5	Section 4, Information Architecture Program Policies, Para 4.4.1, Methodologies, Second Paragraph, Last Sentence	**Name:** Crowl, HR-07 **Comment:** Break this long sentence into smaller sentences. **Action Taken:** Done.
Page 4-6	Section 4, Information Architecture Program Policies, Para 4.4.1, Methodologies, First Paragraph	**Name:** Crowl, HR-07 **Comment:** This paragraph is difficult to read. Have the measures referred to been published? **Action Taken:**

Page #	Section Title & Identification	Comments/Resolution
		The paragraph was reworked.
Page 4-7	Section 4, Information Architecture Program Policies, Para 4.4.2, Design Approaches	**Name:** Crowl, HR-07 **Comment:** What is the relationship of the three tier model and the five layer model? **Action Taken:** This paragraph was reworked to describe their relative purposes and benefits.
Page 4-7	Section 4, Information Architecture Program Policies, Para 4.4.4, Implementation	**Name:** Crowl, HR-07 **Comment:** 1. What are the five layers and state them here. 2. Where were these "major configurations" defined previously? **Action Taken:** 1. They were presented and defined earlier in figure 4-1, Departmental Information Architecture. They will be enumerated again, here, for readability. 2. They were developed for use by the Department and for this document so that executives, technology planners, developers, maintainers, and users can refer to large physical system structures with a common Departmental language. The current practice of referring to local virtual names as a substitute for these structures has caused continuing confusion, unnecessarily increased the perceptions of system complexity and redundancy, and has obscured the distinctions between local and Departmental capabilities. This approach also provides a common means to identify acquisition opportunities that are Departmentwide compared to local (geographically and relatively design independent of) capabilities that may exist in other forms elsewhere.
Page 4-9	Section 4,	**Name:** Crowl, HR-07

Page #	Section Title & Identification	Comments/Resolution
	Information Architecture Program Policies, Para 4.4.5, Levels of Technology Maturity, First Paragraph, Last Sentence	**Comment:** Change "described" to read "defined". **Action Taken:** Done.
Page 4-10	Section 4, Information Architecture Program Policies, Para 4.4.5, Levels of Technology Maturity, First Paragraph, Last Bullet	**Name:** Crowl, HR-07 **Comment:** This bullet addresses indicators of obsolescence. Why not establish the lower bound as 80386 or Windows capable (instead of 80286)? **Action Taken:** Good point. The 80286 reference was derived from the results of the Information Architecture Baseline Analysis. Since then, both MacIntosh and Intel platforms have evolved into much more capable (faster) platforms which are indicated by their MHZ (a CPU speed indicator). Newer software products require faster processing to achieve their user performance goals. Given the passage in time since the analysis and the movement of the industry to faster range of speeds within a single CPU family, the references for CPU obsolescence will be changed to MHz.
Page 4-11	Section 4, Information Architecture Program Policies, Para 4.4.8, Measurement, First Paragraph	**Name:** Crowl, HR-07 **Comment:** 1. This paragraph is weak in that, presumably, measures would be made BEFORE investments are made. 2. Delete the prefix "cost-" in the first sentence. **Action Taken:** The paragraph was revised.

Page #	Section Title & Identification	Comments/Resolution
Page 4-11	Section 4, Information Architecture Program Policies, Para 4.4.8, Measurement, Second Bullet	**Name:** Crowl, HR-07 **Comment:** The tenses for "architecture" in the first and second sentence should agree. **Action Taken:** Corrected.
Page 4-12	Section 4, Information Architecture Program Policies, Para 4.4.8, Measurement, Last Paragraph	**Name:** Crowl, HR-07 **Comment:** Is the desired focus "cause and effect" or "outcomes"? **Action Taken:** Both are appropriate. The text has been so changed.
Page 4-12	Section 4, Information Architecture Program Policies, Para 4.4, Last Paragraph	**Name:** Sibert, HR-433 **Comment:** Change punctuation in text to read " ... methodologies or tools available, this is a ... " and " ... mathematical and statistical methods which have ..." **Action Taken:** Done.
Page 4-13	Section 4, Information Architecture Program Policies, Para 4.6.1, First Paragraph, First Sentence	**Name:** Sibert, HR-433 **Comment:** Change text to read " ... community and with other business ..." **Action Taken:** Done.
Page 4-13	Section 4, Information Architecture	**Name:** Crowl, HR-07 **Comment:**

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	Program Policies, Para 4.6.1, Architecture Standards Framework, First Paragraph, Second Sentence	Change text to read "While they are not mandatory, requiring contracts that use technology implementations throughout the Department such as the Department's Telecommunications Integrator Service (TELIS) to be in compliance with the DOE information architecture is strongly recommended. The CIO will measure selective aspects of architecture implementations using these capabilities to assess the extent to which these Departmental contracts measurably contribute to the Department's investment returns." **Action Taken:** Done.
Page 4-13	Section 4, Information Architecture Program Policies, Para 4.6.1, Second Paragraph, Second Sentence	**Name:** Sibert, HR-433 **Comment:** Change text to read "As higher degrees of interoperability are deemed critical especially within the business areas and across administrative functions, the need for standards becomes critical." **Action Taken:** Done.
Page 4-14	Section 4, Information Architecture Program Policies, Para 4.6.2, Standards Adoption Processes, Second Paragraph	**Name:** Crowl, HR-07 **Comment:** 1. Change first sentence to read "..consists of selected Federal standards as augmented by standards of other ...". 2. Change "the ten standards service areas" to read "standards service areas" **Action Taken:** Done.
Page 4-14	Section 4, Information Architecture Program	**Name:** Crowl, HR-07 **Comment:** What is the responsibility of those using processes that

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	Policies, Para 4.6.3, Standards Scope, Use, and Applicability, First Paragraph	are NOT in compliance with this guidance? **Action Taken:** The same as those for non-compliance with established policies. The CIO has publicly stated that "Non-compliance with DOE standards DOES have its consequences." He chose to leave the consequences ambiguous because of the many ways and means that non-compliance might take. We follow his lead, here.
Page 4-14	Section 4.6.3, Standards, Scope, Use, and Applicability, Last Paragraph.	**Name:** Dyxin, CH **Comment:** Also while the ITMRA gives the CIO the authority to establish a Departmental IA, the paragraph states that the DOE IA principles and standards contained in this guidance document are subject to review, audit, and reportable management performance resulting in the recommendation for system cancellation and the pursuance of funding withdrawal. If that, in fact, is the intent, then the principles and standards set forth in this document should be issued as Departmental policy and not as intended guidance. Guidance and reference documents as not intended to be subjected to this level of review nor the resultant actions contained in this paragraph. **Action Taken:** These words are direct extracts from OMB guidance given to DOE to amplify the requirements in the IMTRA. There is no other policy document in place at the present time nor in the immediate foreseeable future to give the field information about OMB's objectives to establish some sort of auditability to I/T investment decisions. This information, when presented in a guidance document, is only conveyed as guidance since the document does not have the similar force of compliance requirements in a policy, manual, or directive. If a policy document for this area does subsequently emerge, then it will have the full force and effect of policy and this guidance document will continue to be purely guidance.

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Page 4-15	Section 4.6.3, Standards, Scope, Use, and Applicability, First Paragraph, Second Sentence	**Name:** Sibert, HR-433 **Comment:** Change punctuation to read "... global basis, requires ..." **Action Taken:** Done.
Page 4-15	Section 4.6.3, Standards, Scope, Use, and Applicability, First Paragraph, First Sentence	**Name:** Crowl, HR-07 **Comment:** 1. The first sentence does not seem consistent with the notion of "guidance as non-mandatory." 2. In the second sentence, why not just say that they are responsible for the consequences? **Action Taken:** 1. The use of the term "requires" is a business based imperative, not a standards based "shall/must" statement. It conveys the Department's operating needs and not the design "hows" to satisfy them. 2. Our purpose is NOT to provide guidance which places blame or threatens some form of retaliation for variation. Every site and business area should perform an analysis of their local situation and alternatives. This creates their choices in how they conduct their architecture affairs. From the Department's point of view, they should be free to make any choice they deem necessary, but they should not expect the Department to subsidize or otherwise pay for their "non-compliant" choices. Given the past experience in this area, this is the strongest statement on this issue thus far. We would prefer not to make it shorter, harsher, and less informative than as currently stated.
Page 5-1	Section 5, Summary, First Paragraph,	**Name:** Sibert, HR-433 **Comment:**

Page #	*Section Title & Identification*	*Comments/Resolution*
	Second Sentence	Suggest rewording of entire sentence. **Action Taken:** Done.
Page 5-1	Section 5, Summary, Second Paragraph	**Name:** Crowl, HR-07 **Comment:** Change text to read "... eight principles that will be used in evaluating the appropriateness of ..." and "... initiatives impacting the Departmental architecture." **Action Taken:** Done.